

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 – 39. (Canceled)

40. (Currently Amended) An apparatus adapted to detect an object in a work area, the object having a tag element affixed thereto, the apparatus comprising:

a first electronic circuit coupled to a transmit/receive antenna and adapted to emit a varying wideband interrogation signal to energize said tag element to enable said tag element to ~~generate-transmit~~ at least one un-modulated return signal in response to energization by said varying wideband interrogation signal; and

a second electronic circuit coupled to said transmit/receive antenna and adapted to determine whether said tag element is present in said work area from said at least one un-modulated return signal generated in response to said energization by said wideband interrogation signal.

41. (Previously Presented) The apparatus of claim 40 wherein said varying wideband interrogation signal includes a pulse-width varying wideband interrogation signal.

42. (Previously Presented) The apparatus of claim 40 wherein said varying wideband interrogation signal includes a voltage varying wideband interrogation signal.

43. (Currently Amended) The apparatus of claim 40 wherein said transmit/receive antenna includes three mutually orthogonal rings arranged on a wand, each adapted to individually transmit said varying wideband interrogation signal in round-robin succession in respective coordinate directions and each adapted to receive said at least one return

signal, wherein transmit and receive cycles of each ring are clocked so as to avoid overlap with transmit and receive cycles of others of said rings.

44. (Currently Amended) An apparatus adapted to detect an object in a work area, the object having a tag element affixed thereto, the apparatus comprising:

a first electronic circuit coupled to a transmit/receive antenna and adapted to emit a varying wideband interrogation signal, the varying wideband interrogation signal having a plurality of pulses adapted to additively build energy in said tag element to enable said tag element to ~~generate-transmit, in response to said varying wideband signal,~~ at least one return signal that is an image of a resonance decay of said additively built energy of said tag element; and

a second electronic circuit coupled to said transmit/receive antenna and adapted to determine whether said tag element is present in said work area and to discriminate said at least one return signal from noise, based on a magnitude of said resonance decay that commences after turn-off of at least one of said pulses.

45. (Previously Presented) The apparatus of claim 44 wherein said at least one return signal is un-modulated.

46. (Previously Presented) The apparatus of claim 44 wherein said at least one return signal includes a relatively narrowband return signal centered about a specific, but not predetermined frequency.

47. (Previously Presented) The apparatus of claim 44 wherein said varying wideband interrogation signal includes a pulse-width varying wideband interrogation signal.

48. (Previously Presented) The apparatus of claim 44 wherein said varying wideband interrogation signal includes a voltage varying wideband interrogation signal.

49. (Currently Amended) The apparatus of claim 44 wherein said transmit/receive antenna includes three mutually orthogonal rings arranged on a wand, each adapted to individually transmit said varying wideband interrogation signal in round-robin succession in respective coordinate directions and each adapted to receive said at least one return signal, wherein transmit and receive cycles of each ring are clocked so as to avoid overlap with transmit and receive cycles of others of said rings.

50. (Previously Presented) The apparatus of claim 44 wherein said second electronic circuit includes a digital signal processor (DSP) adapted to filter said at least one return signal from noise.

51. (Previously Presented) The apparatus of claim 44 wherein said first and second electronic circuits and said transmit/receive antenna are part of a hand-held scanning device adapted to detect said object having said tag element affixed thereto in said work area, including a surgical area internal to a patient.

52. (Currently Amended) An apparatus adapted to detect an object in a work area, the object having a tag element affixed thereto, the apparatus comprising:

a first electronic circuit coupled to a transmit/receive antenna and adapted to emit a varying wideband interrogation signal, the varying wideband interrogation signal having at least one pulse adapted to provide energy to said tag element to enable said tag element to generate-transmit, in response to said varying wideband signal, at least one return signal that is an image of a resonance decay of said provided energy of said tag element; and

a second electronic circuit coupled to said transmit/receive antenna and adapted to determine whether said tag element is present in said work area ~~by use of~~ from a detected magnitude, that is above a noise level and that commences after turn-off of said at least one pulse, of said resonance decay.

53. (Previously Presented) The apparatus of claim 52 wherein said at least one pulse includes a plurality of pulses adapted to additively build said energy in said tag element.

54. (Previously Presented) The apparatus of claim 52 wherein said at least one return signal includes a relatively narrowband return signal centered about a specific, but not predetermined frequency.

55. (Currently Amended) The apparatus of claim 52 wherein said varying wideband interrogation signal includes a pulse-width varying wideband interrogation signal.

56. (Currently Amended) The apparatus of claim 52 wherein said varying wideband interrogation signal includes a voltage varying wideband interrogation signal.

57. (Currently Amended) The apparatus of claim 52 wherein said transmit/receive antenna includes three mutually orthogonal rings arranged on a wand, each adapted to individually transmit said varying wideband interrogation signal in successive round-robin in respective coordinate directions and each adapted to receive said at least one return signal, wherein transmit and receive cycles of each ring are clocked so as to avoid overlap with transmit and receive cycles of others of said rings.

58. (Previously Presented) The apparatus of claim 52 wherein said second electronic circuit includes a digital signal processor (DSP) adapted to filter said at least one return signal from noise.

59. (Currently Amended) The apparatus of claim 52 wherein said second electronic circuit includes a Bessel low pass filter adapted to narrow a bandwidth of said noise.

60. (Previously Presented) The apparatus of claim 52 wherein said first and second electronic circuits and said transmit/receive antenna are part of a hand-held scanning

device adapted to detect said object having said tag element affixed thereto in said work area, including a surgical area internal to a patient.

61. (Previously Presented) The apparatus of claim 52 wherein said at least one return signal is un-modulated.

62. (New) The apparatus of claim 52 wherein said varying wideband interrogation signal has a randomly varied frequency.

63. (New) The apparatus of claim 62 wherein said frequency of said varying wideband interrogation signal is randomly varied by alteration of a time interval between successive drive pulses.

64. (New) The apparatus of claim 40 wherein said wideband interrogation signal is varied by said first electronic circuit so as to increase a signal to noise ratio.